

ABSTRACT

A SMA actuator having rigid members and SMA wires, in which improved temperature control of the SMA wires of the actuator is provided by a heat sink, which may be the rigid members themselves, in close proximity to at least a central portion of the wires. Optionally, the heat sink is sized and placed such that the end portions of the wires where they are attached to the rigid members are not in close proximity to the heat sink. Where the heat sink is external, it optionally has a cooling element that acts passively as a heat sink during the heating cycle of the actuator and that acts as an active cooling element during the cooling cycle of the actuator. An SMA actuator having a desired contraction limit and a power supply circuit has a switch in the power supply circuit that is normally closed when the actuator is contracted to less than the desired contraction limit and is opened by the actuator reaching the desired contraction limit. This improved temperature control provides greater cooling of the SMA wires for a faster response and an extended working life of the actuator.

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